

Application No.: 09/869,777

Response dated February 17, 2004

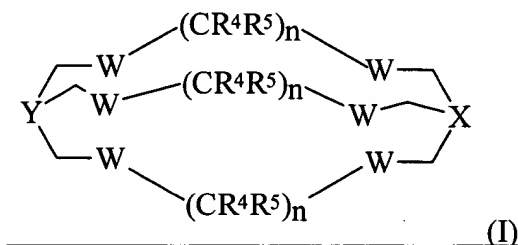
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (Canceled)

3. (Currently Amended) A compound ~~according to claim 1, wherein the functionalised linkage group Z of the compound of Formula (I) is a vinyl pyridyl group of the formula~~ which is capable of being radiolabelled of general Formula (I):



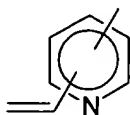
in which n represents an integer from 2 to 4,

where each R⁴ and R⁵ is independently selected from -H, CH₃, COOH, NO₂, CH₂OH, H₂PO₄, HSO₃, CN, C(=O)NH₂ and CHO;

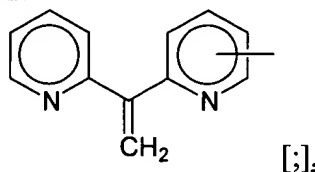
X and Y are the same or different and are selected from the group of C-R, N, P and C-Z in which R is selected from hydrogen, halogen, hydroxyl, nitro, nitroso, amino, optionally substituted alkyl, optionally substituted aryl, optionally substituted aralkyl, cyano, -COOR', COCOOR', NH-COCH₂Br, -NH-CO-CH=CH-COOR' in which R' is a hydrogen atom or alkyl group, wherein at least one of X and Y is C-Z;

W is selected from the group of NH, S and O; and

Z is a functionalised vinyl pyridyl group which is capable of binding said compound of formula (I) to a molecular recognition unit, selected from



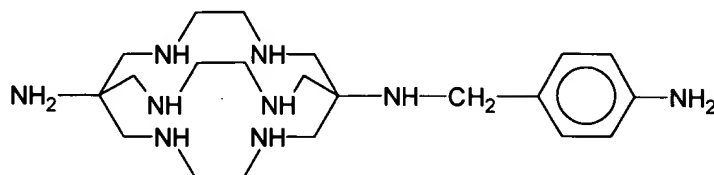
or and



or a pharmaceutically acceptable salt thereof.

4-29. (Canceled)

30. (Currently Amended) A compound having the following structure:



wherein said compound is capable of binding to a molecular recognition unit.

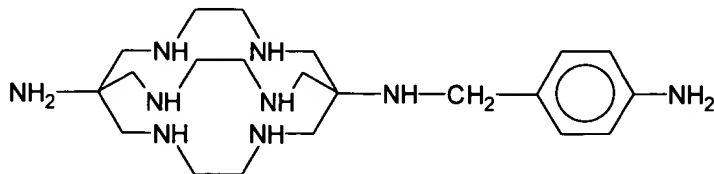
31. (Previously Presented) A compound according to claim 30 which is complexed with a metal ion.

32. (Previously Presented) A compound according to claim 31 wherein the metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Co, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

33. (Previously Presented) A compound according to claim 32, wherein the metal ion is a radionuclide selected from the group consisting of ⁶⁴Cu, ⁶⁷Cu, Tc, In, Gd, Ga, Fe, Co, Ti and other radionuclides from the Lanthanides, Re, Sm, Ho and Y.

34. (Previously Presented) A compound according to claim 33, wherein the radionuclide is selected from ⁶⁴Cu and ⁶⁷Cu.

35. (Currently Amended) A method of diagnosis or therapy in a subject comprising administering to said subject an effective amount of a metal ion complex of a compound, wherein said compound has having the structure



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or a pharmaceutically acceptable salt thereof.

36. (Previously Presented) The method of claim 35, wherein said metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Co, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

37. (Previously Presented) The method of claim 36, wherein the metal ion is a radionuclide selected from the group consisting of ^{64}Cu , ^{67}Cu , Tc, In, Gd, Ga, Fe, Co, Ti and other radionuclides from the Lanthanides, Re, Sm, Ho and Y.

38. (Previously Presented) The method of claim 37, wherein the radionuclide is selected from ^{64}Cu and ^{67}Cu .

39-48. Canceled.

49. (New) A compound according to claim 3, wherein the molecular recognition unit is selected from the group consisting of an antibody, protein, peptide, carbohydrate, nucleic acid, oligonucleotide, oligosaccharide and liposome.

50. (New) A compound according to claim 3, wherein W is NH.

51. (New) A compound according to claim 3, wherein said compound is complexed with a metal ion.

52. (New) A compound according to claim 51, wherein the metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Co, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

53. (New) A compound according to claim 51, wherein the metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

54. (New) A compound according to claim 52, wherein the metal ion is a radionuclide selected from the group consisting of ^{64}Cu , ^{67}Cu , Tc, In, Gd, Ga, Fe, Co, Ti and other radionuclides from the Lanthanides, including Re, Sm, Ho and Y.

55. (New) A compound according to claim 54, wherein the radionuclide is selected from ^{64}Cu and ^{67}Cu .

56. (New) A pharmaceutical composition comprising a compound of Formula (I) compound according to claim 3, a pharmaceutically acceptable salt thereof, or a radiolabelled complex thereof, together with a pharmaceutically acceptable carrier.

57. (New) A diagnostic composition comprising a compound of Formula (I) compound according to claim 3, a pharmaceutically acceptable salt thereof, or a radiolabelled complex thereof, and a reducing agent, together with a pharmaceutically acceptable carrier.

58. (New) A method of diagnosis or therapy in a subject comprising administering to the subject an effective amount of a metal complex or radiolabelled complex of a compound of Formula (I) according to claim 3, or a pharmaceutically acceptable salt thereof.

59. (New) The method of claim 58, wherein said metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Co, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

60. (New) The method of claim 59, wherein the metal ion is a radionuclide selected from the group consisting of ^{64}Cu , ^{67}Cu , Tc, In, Gd, Ga, Fe, Co, Ti and other radionuclides from the Lanthanides, Re, Sm, Ho and Y.

61. (New) The method of claim 60, wherein the radionuclide is selected from ^{64}Cu and ^{67}Cu .

62. (New) A method of imaging a subject comprising administering to said subject an effective amount of a metal complex or radiolabelled complex of a compound of Formula (I) according to claim 3, or a pharmaceutically acceptable salt thereof.

63. (New) A compound according to claim 31, wherein the metal ion is selected from Cu, Tc, Gd, Ga, In, Y, Re, Fe, Au, Ag, Rh, Pt, Bi, Cr, W, Ni, V, Pb, Ir, Pt, Zn, Cd, Mn, Ru, Pd, Hg, Ti, and the lanthanide group of elements in the Periodic Table such as Sm, Ho, Tb, Sc.

64. (New) A pharmaceutical composition comprising a compound according to claim 30, or a pharmaceutically acceptable salt thereof, or a radiolabelled complex thereof, together

with a pharmaceutically acceptable carrier.

65. (New) A diagnostic composition comprising a compound according to claim 30, or a pharmaceutically acceptable salt thereof, or a radiolabelled complex thereof, and a reducing agent, together with a pharmaceutically acceptable carrier.

66. (New) A method of imaging a subject comprising administering to said subject an effective amount of a metal complex or radiolabelled complex of a compound according to claim 30, or a pharmaceutically acceptable salt thereof.

67. (New) A compound according to claim 30, wherein the molecular recognition unit is selected from the group consisting of an antibody, protein, peptide, carbohydrate, nucleic acid, oligonucleotide, oligosaccharide and liposome.

68. (New) A compound according to claim 67, wherein the molecular recognition unit is an antibody.

69. (New) A conjugate compound comprising at least one compound of Formula (I) according to claim 3, or a metal complex, or radiolabelled complex, or a pharmaceutically acceptable salt thereof, bonded to at least one molecular recognition unit comprising an antibody, protein, peptide, carbohydrate, oligonucleotide or oligosaccharide.

70. (New) A conjugate compound comprising a compound according to claim 30, or a metal complex, or radiolabelled complex, or a pharmaceutically acceptable salt thereof, bonded to at least one molecular recognition unit comprising an antibody, protein, peptide, carbohydrate, oligonucleotide or oligosaccharide.

71. (New) A compound according to claim 70, wherein the molecular recognition unit is an antibody.

72. (New) A method of imaging a subject comprising administering to said subject an effective amount of a metal complex or radiolabelled complex of a conjugate compound according to claim 69, or a pharmaceutically acceptable salt thereof.

73. (New) A method of imaging a subject comprising administering to said subject an effective amount of a metal complex or radiolabelled complex of a conjugate compound

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according to claim 70, or a pharmaceutically acceptable salt thereof.

74. (New) A pharmaceutical composition comprising a conjugate compound according to claim 69, together with a pharmaceutically acceptable carrier.

75. (New) A pharmaceutical composition comprising a conjugate compound according to claim 70, together with a pharmaceutically acceptable carrier.

76. (New) A method of diagnosis or therapy of a disease in a subject comprising administering to the subject an effective amount of a conjugate compound according to claim 69, or a metal complex, radiolabelled complex or pharmaceutically acceptable salt thereof.

77. (New) A method of diagnosis or therapy of a disease in a subject comprising administering to the subject an effective amount of a conjugate compound according to claim 70, or a metal complex, radiolabelled complex or pharmaceutically acceptable salt thereof.